diathetic heredity, and is always associated with an appreciable disturbance of the vasomotor system.

Orthostatic albuminuria seems to be due to fluctuating congestion of the kidney, a vasomotor disturbance of the renal circulation. It may be compared to the cyanosis of the extremities which is produced by the same cause.

Aubertin and Rogers[1] reported five cases of distinctly orthostatic albuminuria following scarlet fever. Aubertin believed it to be the terminal stage of a previous nephritis and a disturbance in the circulation of the kidney.

Rudolph[2] believes that this form of albuminuria is the result of venous stagnation. The fact that the upright posture causes the albuminuria indicates that it is physical. He thinks that it is the result of previous inflammation of the kidneys and lack of elasticity of the vessel walls in the glomeruli.

Niviere[3] reported a case of orthostatic albuminuria in a young man, aged twenty years, who had dyspepsia for five years, and had had scarlet fever at the age of seven years. The patient had a movable right kidney. There was one gramme of albumin to the litre of urine. A flannel binder relieved the condition, but the albumin reappeared when the binder was removed. Niviere believes that the albuminuria was due to mechanical causes, which disappeared when the abdominal viscera were kept in place.

The treatment, as directed by Vire, is hygienic, strengthening, and antinervous, the line adopted in this case in which the albuminuria disappeared in one month.

ON THE OCCURRENCE OF EHRLICH'S DIMETHYLAMIDOBENZALDEHYDE REACTION IN THE URINE.

BY CHARLES E. SIMON, M.D.,
OF BALTIMORE, MD.

ABOUT two years ago Ehrlich[4] pointed out that under certain conditions dimethylamidobenzaldehyde produces a red color with certain mucins, and that a similar reaction may be obtained with both normal and pathological urines. He was guided in his experiments by a knowledge of the readiness with which the aldehydes react with various chemical substances, and notably with anilins and phenols. By making use of aldehydes which furnish colored compounds, his view was, if possible, to demonstrate still unknown constituents belonging to this class. He found that in various pathological urines, notably in phthisis, typhoid fever, and chronic enteritis, a fine, cherry-red color develops on shaking the urine with a few drops of the reagent in acid solution, and that the resulting pigment can be in part extracted with chloroform, and almost entirely so with epichlorhydrin or dichlorhydrin. It was further ascertained that normal urines also give the reaction, but that this is much less intense, and if done at ordinary temperatures a distinct red color does not develop. On heating, however, it becomes apparent and can likewise be demonstrated by extracting with epichlorhydrin. But even then the intensity of the reaction is not at all comparable to what is seen in disease. Ehrlich suggested at the time that it would be of interest to study the reaction in question in a large number of cases, and to ascertain the conditions under which the intensified reaction occurs. I began my observations after seeing Ehrlich's paper and have continued them, with unavoidable interruptions, ever since. As the urinary material which has been at my disposal, however, has not been very large, my investigations could not be so extensive as I should have liked. My single examinations, however, are, nevertheless, sufficiently numerous to warrant their report at this time, and I have been further impelled to publication by the fact that two papers on the same subject have already appeared in the foreign journals.

---

[1] La Presse Médicale, October 9, 1901, No. 81.

[2] Centralblatt f. innere Medicin, February 24, 1900, 21 Jahrg., No. 8.

[3] Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris, 1901, No. 6.

[4] Ueber die Dimethylamidobenzaldehydreaction. Med. Woch., 1901, No. 15.

The first clinical report was made by Clemens.[1] His results in summary are the following: The intensified reaction, with which alone we have to deal in the present paper, was never observed in health. It was most commonly seen in acute gastrointestinal affections, and among these practically only in the inflammatory forms or those depending upon tumors. Pure cases of gastritis and enteritis individually very curiously did not give the reaction. In the common gastroenteritis of the summer months it was found in three-fourths of all cases. In chronic enteritis it was relatively less common, but was occasionally found, once quite intensely in an alcoholic patient. Of nine cases of appendicitis, six gave positive results, and it was observed that in some it persisted even after the disappearance of the clinical symptoms. It was positive in some cases of simple constipation and in one case of lead colic. Of three cases of carcinoma of the stomach it was absent in one, occasionally present in the second, and apparently constantly present in the third. In one case of carcinoma of the œsophagus also it was always found.

Negative results were obtained in dilatation and ulcer of the stomach, in enteroptosis, non-tuberculous peritonitis, hepatic cirrhosis, intestinal tuberculosis, and acute intestinal occlusion.

---

[1] Zur Ehrlich'schen Dimethylamidobenzaldehydreaction. Deutsch. Arch., 1901, vol. lxxi. p. 168.

Of diseases of the respiratory organs, three cases of pneumonia of five gave the reaction, as also one case of acute febrile bronchitis, while the great number of the acute and chronic bronchitis cases and two of bronchial asthma gave negative results.

Of eight cases of pleurisy the reaction was obtained in two and it is noteworthy that both individuals were tuberculous.

Two cases of empyema, of which one was complicated with miliary tuberculosis, did not react, but in a case of subphrenic abscess the reaction was constantly present.

Of twenty-six cases of pulmonary tuberculosis, nine gave a positive result, and it is noteworthy that not all of these were complicated by gastrointestinal disturbances. In this connection Clemens introduces a summary of the results which were obtained in pulmonary tuberculosis at a certain sanatorium, by Dr. Engel, which I reproduce:

" The reaction is positive in connection with acute gastrointestinal —notably, intestinal—disturbances. It is frequently positive, with a simultaneously positive diazo reaction. Tuberculosis *per se*, even the febrile advanced form, does not necessarily call forth a positive reaction. Frequently it was present on admission and disappeared within a few days after the arrival of the patient. In cases in which a positive reaction was obtained the urine was constantly of high specific gravity —1028 to 1032. With its disappearance the specific gravity also fell to normal. It is noteworthy, however, that by artificially concentrating the urine a positive result could not be produced in the negative cases."

Clemens then continues his personal observations: A positive result was obtained in one case of tuberculous meningitis, in one of tuberculous pleurisy and peritonitis, and in one of miliary tuberculosis.

Acute diseases of the endocardium and pericardium, as well as valvular lesions in the absence of complications, and further cases of nephritis and cystitis, gave negative results. In one case of pyelocystitis, however, the reaction was present.

Negative results were obtained in the diphtheritic and non-diphtheritic anginas, in cases of acute articular rheumatism, and also in two cases of scarlatina, while of six cases of measles two reacted positively. Of six cases of facial erysipelas three gave a positive reaction, which persisted in one at least with great intensity into convalescence. Only three cases of typhoid fever were examined, and of these only one gave a positive reaction, which was pronounced and persisted for some time.

In several cases of diabetes and glycosuria a negative result was obtained. A case of morbus maculosus Werlhofii, with fairly severe symptoms at first, gave a positive reaction continuously, which later disappeared.

In two cases of brain tumor the reaction was negative.

Important is the observation of Clemens that all stools which he examined, both normal and abnormal, gave a distinct bluish reaction of approximately the same intensity in all, and the same was observed in the case of the distillate. As pure indol also gives the reaction it is quite likely that the fecal reaction is referable to this source. Whether it is identical with the urinary reaction remains to be seen. Urines which are rich in indican do not necessarily give it, as we shall see.

The second clinical report is made by Koziczkowsky[1] and comes from Senator's clinic. His results follow:

A constant reaction, viz., present from the first observation until death, was observed in five cases of pulmonary tuberculosis, one of pulmonary tuberculosis associated with tuberculous peritonitis, and in one case of fibrinous pneumonia. All six cases of tuberculosis presented a very severe form of the disease and were associated with rapid wasting; especially high temperatures were not observed. In connection with this first group he further mentions two cases which had not gone on to a fatal end yet at the time of the report, but in which the reaction was also constantly present. The one was a case of infectious cholecystitis and cholangitis, in which the urine contained bile pigment; on some days on which the urine contained specially large amounts of bilirubin the red color was not seen, but in its place a dark, dirty, greenish shade. The second case was a severe endocarditis, with very high and subnormal temperatures, following acute articular rheumatism. Both cases were rather hopeless.

In his second group Koziczkowsky has collected five cases in which the reaction was not continuously, but only temporarily, present. It comprises one case each of fibrinous pneumonia, of pulmonary tuberculosis, of acute endocarditis, acute articular rheumatism, and of scarlatina. In these five cases the reaction was constantly present for some time, and it was noted that with an improvement of the subjective and objective symptoms there was at first a diminution in the intensity of the reaction, which then gradually disappeared. He adds three cases to this group in which a negative result was obtained for some time following admission, but in which it gradually appeared. One of these cases was a chronic bronchitis with bronchiectasis, the second a pulmonary tuberculosis, and the third a pulmonary tuberculosis associated with nephritis. In all three the appearance of the reaction was associated with a deterioration in the patient's condition.

In all other cases which were examined negative results were obtained. These comprise seven cases of pulmonary tuberculosis, one of pneumonia, seven of chronic nephritis, two of splenic anæmia, three of subacute articular rheumatism, four each of acute diarrhœa, chronic enteritis, neurasthenia and constipation, and one each of gonorrhœal arthritis, erysipelas, acute articular rheumatism, angina, endocarditis, chronic bronchitis, diabetes mellitus, traumatic neurosis, influenza, hepatic cirrhosis, carcinoma of the liver, carcinoma of the stomach, achylia gastrica, angina pectoris, tabes, Landry's paralysis,and tertiary syphilis.

---

[1] Berl. med. Woch., 1902, vol. xxxix., No. 44.

In attempting to ascertain the relationship between the occurrence of the reaction and the degree of intestinal putrefaction, Koziczkowsky also made parallel indican examinations in his cases, but was unable to establish any definite relation.

Experiments on rabbits which were further undertaken to ascertain the influence of increased tissue destruction upon the reaction likewise yielded no results. Of special interest also is the observation that Koziczkowsky was unable to obtain the reaction in the œdematous fluid of a patient in whose urine the reaction was constantly present with great intensity.

In my personal examinations I employed a 2 per cent. solution of dimethylparamidobenzaldehyde in equal parts of water and concentrated hydrochloric acid. A few cubic centimetres of urine in a test-tube are treated with from five to ten drops of the reagent; the mixture is set aside or agitated for a few minutes and the color then noted. Normal urines usually turn a greenish-yellow, or the normal color merely becomes intensified. At times a dark amber color develops, though this is less common in health, unless the urine is brought to the boil before the reagent is added. In this way it is a common experience to meet with moderately or dark amber tints. With these reactions, however, I have not occupied myself, and, like Clemens and Koziczkowsky, I have only noted the reaction as positive when a distinct *cherry-red* color developed, either immediately on adding the reagent or after agitation or standing. This reaction I have never noted in health, though many urines from supposedly normal individuals were examined. That the substance which gives the pathological reaction is present, however, can often be demonstrated even then by extracting with a little chloroform or, still better, with epichlorhydrin, which will take on a more or less well-marked pink color. In my observations in disease, heat was not applied. In every case the urine should be as fresh as possible; certainly not older than twelve hours, for I have often noticed that a urine which gave an intense red on the afternoon of one day scarcely reacted at all on the next morning or merely gave a dark amber color. Most likely the substance which gives the reaction is readily decomposed and all attempts at preservation which I have made have thus far proven futile.

In this connection it is important to note that the presence of formalin will prevent the occurrence of the reaction, as has been demonstrated by Ehrlich, Pröscher, and Nicolaier, independently of each other, and as can be readily demonstrated as follows: Of a urine which gives a well-marked reaction a few cubic centimetres are placed in two test-tubes. To the one specimen a few drops of formalin solution are added and then the reagent to both. The formalin specimen retains its previous normal color, while in the other the red develops. In this manner a convenient control-test can be made in doubtful cases. The negative reaction in the case of the formalin specimen is explained by the fact that the formalin has probably united with the group of the urinary body, which would otherwise have combined with the benzaldehyde.

The intensity of the red color in disease, as I have stated before, is variable. Sometimes it develops almost immediately when the first drop of the reagent falls into the urine; at other times it is necessary to wait for from two to four minutes before the full intensity is reached. To wait much longer than five minutes is not always safe, as the red color disappears again on standing and is replaced by the more common dark amber. However, I have also seen the red color persist for several days, but only in the case of urines which gave a very intense reaction.

As regards my positive results, I may state at once that there was no single disease in which the reaction was obtained in every case, and that even in one and the same individual the reaction was not constantly present. Positive findings were noted in pulmonary tuberculosis, tuberculosis of the hip-joint, pneumonia, typhoid fever, appendicitis, embarras gastrique, icterus, malignant endocarditis, traumatic neurosis, empyema, and œsophageal carcinoma. My list of negative cases, on the other hand, includes first of all a large number of normal or supposedly normal individuals, further cases of normal labor, neurasthenia, hysteria, diabetes, aortic aneurism, myelogenous leukæmia, lymphatic leukæmia, acute nephritis (scarlatinal), simple diarrhœa, morphinism, valvular disease, phthisis (stationary), diphtheria (before and after the use of antitoxin), typhoid fever, cases of abortion, appendicitis, influenza, chronic nephritis, cystitis, pyelitis (calculous), measles, tuberculosis of the hip-joint, cystic kidney, carcinoma of the kidney, tonsillitis, acute and chronic bronchitis, pneumonia, icterus, tubercular peritonitis, general erythema, varicocele, following various operations, such as nephrorrhaphy, removal of pus tubes, operation for vesicovaginal fistula, fistula in ano, and suspension of the uterus. Examination of a urine containing cystin and diamins also was negative. A comparison of the negative with the positive cases will show at once that not all cases of pulmonary tuberculosis, tuberculous hip-joint disease, pneumonia, typhoid fever, appendicitis, and icterus give a positive result. So far as tuberculosis is concerned, however, it appears that the reaction is more likely to occur in the actively progressive cases than in those which are more or less stationary. It was also noted that the positive cases almost all gave a positive diazo reaction, while in the negative cases this was not obtained. Exceptions, however, are encountered, and it may be stated at once that the occurrence of the benzaldehyde reaction is not at all dependent upon the diazo reaction. This is seen very well in the typhoid cases, where the diazo reaction is so very common and constant, while the benzaldehyde reaction is a most variable factor. In one of my typhoid cases, in which a marked diazo reaction was noted throughout the greater part of the disease, the benzaldehyde reaction was constantly negative.

In the study of the typhoid cases an interesting observation was incidentally made. It was noted that in one instance in which a positive diazo reaction was kept up artificially by the administration of naphthalene, the benzaldehyde reaction was not obtained. This is of moment in the determination of the character of the combining substance.

Noteworthy is the frequency with which the reaction is seen in pneumonia, but it is manifest that its presence here is not an index of the severity of the condition. For, on the one hand, I have obtained a most intense reaction in severe cases that ended in recovery, while, on the other hand, it may be but little pronounced late in the course of fatal cases. In one instance with delayed resolution the reaction was faint on the twelfth day of the disease, distinct on the thirteenth, death occurring on the fourteenth.

In a case of empyema the reaction was quite marked before the operation, so also on the day after operation, while later it was negative.

That elevation of temperature *per se* has nothing to do with the appearance of the reaction is well shown by the typhoid cases, and is further manifest from a study of the febrile diseases, such as acute bronchitis, influenza, tonsillitis, measles, etc., in which negative results only were obtained. Cyanosis also, *per se,* is not the causative factor, as the reaction was present in conditions in which no cyanosis occurred, on the one hand, and absent in others in which there was marked lack of oxygenation.

As a matter of fact, it is difficult to point out one single factor which is constantly present and common to all the positive cases. My impression, however, is that the reaction is most likely to occur in conditions in which there is marked and rapid destruction of tissue albumins. This is suggested especially by the case of traumatic neurosis in which a positive reaction was obtained. The patient in question received an injury to the head, and was thereafter reported to have been unconscious for two or three weeks. Three months later, when he was first seen by Dr. Beach, of Baltimore, to whom I am indebted for these notes, he was much emaciated and made the impression of a person in the last stages of consumption. His pulse then was 48 and the temperature 97° F. There was no cough, no sputum, and physical examination showed the lungs to be clear. The total loss of flesh was between 60 and 75 pounds. There was no diazo reaction, but the benzaldehyde test gave a positive result on every occasion. Subsequently the patient entered suit for damages and was awarded a sum of money. Since then his health has been much improved; he has now gained about thirty pounds and the benzaldehyde reaction is absent.

As I have said, this case in its bearings on the causation of the reaction seems quite suggestive. The patient at the time of the accident was a healthy, robust man without evidence of any organic lesion; at no time was there any fever, gastrointestinal disturbances, or cyanosis. The one controlling factor of the case was the rapid and progressive loss of flesh; while this was actively going on and when the patient was already much emaciated, the reaction was present; later, when the nutrition of the man had improved, it was absent.

The one case of icterus in which the reaction was positive, corresponded in a general way with the complex of symptoms described by Weyl. Bearing in mind that certain constituents of the bile give a color reaction with Ehrlich's sulphanilic acid test, it appeared of interest to test the bile directly with the benzaldehyde also. The material for the test was obtained from a biliary fistula, which had remained after an operation for gallstones; the result was entirely negative.

Quite recently finally I had occasion to again examine the urine of one of the cystin cases which I have previously reported[1] and in which cadaverin was constantly present; in this case, also, negative results were obtained.

If, then, I summarize my clinical results, we may conclude:

1. That the benzaldehyde reaction does not occur under normal conditions, meaning, of course, the pathological grade of the reaction, viz., the direct occurrence of a red color.
2. Positive reactions are most commonly obtained in cases of tuberculosis.
3. The reaction is also seen in non-tuberculous cases, both febrile and non-febrile.
4. It is not dependent upon the presence of the body which gives rise to the diazo reaction.

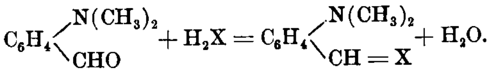
---

[1] THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 1900, vol. cxix. p. 39.

5. For its production elevation of temperature, gastrointestinal disturbances, and cyanosis are not essential.

6. Common to all cases seems to be an increased catabolism of the tissue albumins. This final conclusion, in my opinion, is not rendered negative by Koziczkowsky's experiments on rabbits, and merits further investigation.

As regards the chemical reaction which takes place on the addition of the reagent to the urine, it is likely that the aldehyde group reacts with a methylene or amido group of a still unknown constituent, in the sense of the following equation, in which x represents a radicle of this order:



$$C_6H_4\begin{cases}N(CH_3)_2\\CHO\end{cases} + H_2X = C_6H_4\begin{cases}N(CH_3)_2\\CH=X\end{cases} + H_2O.$$

Of the known constitutents of the urine none gives the reaction As I have pointed out, Clemens has ascertained that the feces of normal as well as of diseased individuals always gives a positive reaction, and that this is in all likelihood due to the presence of indol, which itself gives the reaction. In the case of the urine this observation cannot enter into consideration, as the indol does not appear here in the free state, but as indican, and to a less extent as indoxyl glycuronic acid. A relation between the elimination of indoxyl and the reaction in question, however, does not exist. This has been shown by Clemens and Koziczkowsky, and I have also arrived at the same result. The reaction is sometimes observed coincidently with a pronounced indican reaction, but at other times it may occur even though no indican is demonstrable by the usual tests. One individual that I have been able to observe for years, and who always shows an intense indican reaction, has never given the other, although I have frequently examined in this direction.

All attempts at isolation of the urinary constituent in question have thus far not led to satisfactory results. This is due primarily to the fact that the body is manifestly quite unstable, and that after the disappearance of the reaction from a urine which gave it a short while before it cannot be made to reappear. Momentary ebullition is apparently without effect, but on evaporating the urine the reaction promptly disappears. Appropriate extractives or precipitants are also unknown. Pröscher[1] states that after saturating the urine with ammonium sulphate the body can be extracted in part with amyl alcohol; but as it is present at best only in traces, this method is altogether inapplicable for the purpose of isolating larger amounts.

The red pigment, on the other hand, can be successfully isolated, as has been shown by Pröscher, who obtained the following analytical results: carbon, 56.49 per cent.; hydrogen, 7.06 per cent., and nitrogen, 8.28 per cent.; a molecular determination gave 275, from which the formula $C_{16}H_{24}O_6N_2$ resulted. This represents the compound of the aldehyde and the urinary constituent. By deducting from this the group $C_9H_{11}N$, viz., dimethylamidobenzaldehyde, —O, and adding two atoms of hydrogen, we obtain the formula $C_7H_{15}O_6N$ for the unknown body. This formula only differs by the group COH_2 from that of glucosamin—$C_6H_{13}O_5N$—and we could, accordingly, imagine that it represents a formyl-glucosamin or the acetyl derivative of the still unknown pentosamin.

---

[1] Zur Kenntniss d. Ehrlich'schen Dimethylamidobenzaldehydreaction. Zeitsch. . physiol. Chem., 1901, vol. xxxi. p. 520.

Clemens examined a glucosamin prepared according to Ledderhose, as also a glucosamin, a fructosamin, and a lactosamin, after Lobry de Bruyn, in reference to the reaction, but obtained negative results.

Of special interest in this connection are certain observations which Müller[1] incidentally made in this direction. He cites Ehrlich as authority for the statement that chitin, pure chitosan, glucosamin hydrochlorate, and mucin in itself do not give the reaction; but that it may be obtained with mucin after careful treatment with caustic alkali. Müller was able to confirm Ehrlich's observations in the case of pure mucin obtained from sputum, and also obtained positive results after treating with caustic alkali and heating gently, in the case of submaxillary mucin, ovomucoid, the pseudomucin from ovarian cysts, egg albumen, as also with mucoid sputa and cartilage. He further ascertained that Weydemann's animal gum, which is still quite closely related to its mother-substance, submaxillary mucin, also gave the reaction after boiling with caustic alkali, but not directly. Fränkel's albumin, on the other hand, which may be regarded as the hydrolytic product standing next in order after Weydemann's animal gum, gave the reaction at once. This albumin, according to Fränkel, is a polymeric compound of glucosamin, and it is the more remarkable that it gives the reaction, since Hoppe-Seyler's chitosan, which is likewise a polymer of glucosamin, does not do so, according to Ehrlich.

In order to ascertain whether glucosamin hydrochlorate does not give the reaction because the amido group is bound by the hydrochloric acid, Müller heated the aqueous solution of the hydrochlorate with potassium hydrate or baryta-water, and then added sodium acetate in order to prevent the appearance of free hydrochloric acid. The aldehyde was then added and an amount of acetic acid sufficient to render the fluid strongly acid. It was found, however, that the presence of a mineral acid is essential to the production of the red color, and that glucosamin in acetic acid solution does not give the reaction. Müller further studied the question in the case of pentabenzoyl glucosamin, but likewise only obtained negative results, even after heating with caustic alkali, whereby several benzoyl groups are split off. An aqueous solution of penta-acetyl glucosamin likewise did not react as such, but in this case an intense reaction was obtained on the application of mild heat, if the test were made after the substance had been previously heated with sodium hydrate or baryta-water. This step, however, cannot well have resulted in any other change than the splitting off of one or more of the acetyl groups and the resultant formation of a monoacetylglucosamin or diacetylglucosamin. From this observation the conclusion naturally suggests itself that the red color only develops on treating with dimethylamidobenzaldehyde, if the glucosamin is still united with one or more acetyl groups.

---

[1] Beitr. z. Kenntniss d. Mucins und einiger damit verwandter Eiweisstoffe. Zeit. f. Biol., 1901, vol. xlii. p. 561.

SYPHILIS AS A CAUSE OF CHOREA.[1]

By L. Harrison Mettler, A.M., M.D.,
PROFESSOR OF MENTAL AND NERVOUS DISEASES IN THE CHICAGO CLINICAL SCHOOL; ADJUNCT PROFESSOR OF MEDICINE (NEUROLOGICAL) IN THE COLLEGE OF MEDICINE OF THE UNIVERSITY OF ILLINOIS.

Like most of the so-called functional neuroses, chorea is notorious for the multiplicity of its causes and remedies. One would expect this after a moment's consideration of the name and symptomatology of the disease. The effort to establish chorea as a " definite, substantive affection " (Osler), or as a " distinct malady, showing varying degrees of permanence and intensity " (Dana), is far from being entirely satisfactory. The enumeration of such diverse etiological influences as fright, peripheral reflex irritation, and infectious blood states toward the production of a definite, uniform affection is, to say the least, somewhat anomalous. Hence there is ground for the contention that under the name chorea many varied conditions have hitherto been discussed. This is particularly obvious after a careful comparison of the minor and major choreas, Huntingdon's and Friedreich's diseases, the hysterical and electric choreas, the various tics and symptomatic choreas. Between all these affections there is only an apparent similarity in regard to the muscular jactitations.

The term *chorea* literally means a dance, and, as applied to the irregular, inco-ordinated, jerking movements of the voluntary muscles, indicates a mere symptom rather than a disease. As a symptom it reveals a functional disturbance of the higher or volitional or inhibitory motor neurons, which disturbance, on account of its functional

---

[1] Read before the Chicago Medical Society, March 4, 1903.